

CONTENTS

■ SPECTROSCOPIC METHODOLOGY

Full Papers

- Selective Proton-Observed, Carbon-Edited (selPOCE) MRS Method for Measurement of Glutamate and Glutamine ¹³C-Labeling in the Human Frontal Cortex,** Henk M. De Feyter, Raimund I. Herzog, Bart R. Steensma, Dennis W.J. Klomp, Peter B. Brown, Graeme F. Mason, Douglas L. Rothman, and Robin A. de Graaf 11
Published online 13 November 2017

- Frequency and Phase Correction for Multiplexed Edited MRS of GABA and Glutathione,** Mark Mikkelsen, Muhammad G. Saleh, Jamie Near, Kimberly L. Chan, Tao Gong, Ashley D. Harris, Georg Oeltzschner, Nicolaas A.J. Puts, Kim M. Cecil, Iain D. Wilkinson, and Richard A.E. Edden 21
Published online 7 December 2017

■ PRECLINICAL AND CLINICAL SPECTROSCOPY

Full Paper

- ³¹P T₂s of Phosphomonoesters, Phosphodiester, and Inorganic Phosphate in the Human Brain at 7T,** Wybe J.M. van der Kemp, Dennis W.J. Klomp, and Jannie P. Wijnen 29
Published online 7 December 2017

Note

- Sensitivity Enhancement for Detection of Hyperpolarized ¹³C MRI Probes With ¹H Spin Coupling Introduced by Enzymatic Transformation In Vivo,** Cornelius von Morze, James Tropp, Albert P. Chen, Irene Marco-Rius, Mark Van Criekinge, Timothy W. Skloss, Daniele Mammoli, John Kurhanewicz, Daniel B. Vigneron, Michael A. Ohliger, and Matthew E. Merritt 36
Published online 28 November 2017

■ IMAGING METHODOLOGY

Full Papers

- Velocity Reconstruction With Nonconvex Optimization for Low-Velocity-Encoding Phase-Contrast MRI,** Michael Loecher and Daniel B. Ennis 42
Published online 11 November 2017

- Design of Universal Parallel-Transmit Refocusing k_T-Point Pulses and Application to 3D T₂-Weighted Imaging at 7T,** Vincent Gras, Franck Mauconduit, Alexandre Vignaud, Alexis Amadon, Denis Le Bihan, Tony Stöcker, and Nicolas Boulant 53
Published online 29 November 2017

- Modified Dixon-Based Renal Dynamic Contrast-Enhanced MRI Facilitates Automated Registration and Perfusion Analysis,** Anneloes de Boer, Tim Leiner, Eva E. Vink, Peter J. Blankestijn, and Cornelis A.T. van den Berg 66
Published online 13 November 2017

- RACER-GRASP: Respiratory-Weighted, Aortic Contrast Enhancement-Guided and Coil-Unstreaking Golden-Angle Radial Sparse MRI,** Li Feng, Chenchan Huang, Krishna Shanbhogue, Daniel K Sodickson, Hersh Chandarana, and Ricardo Otazo 77
Published online 28 November 2017

- Error Analysis of Helmholtz-Based MR-Electrical Properties Tomography,** Stefano Mandija, Alessandro Sbrizzi, Ulrich Katscher, Peter R. Luijten, and Cornelis A.T. van den Berg 90
Published online 16 November 2017

- Phase-Sensitive B₁ Mapping: Effects of Relaxation and RF Spoiling,** Jie Wen, Alexander L. Sukstanskii, and Dmitriy A. Yablonskiy 101
Published online 20 November 2017

- General Phase Regularized Reconstruction Using Phase Cycling,** Frank Ong, Joseph Y. Cheng, and Michael Lustig 112
Published online 21 November 2017

- Establishing Upper Limits on Neuronal Activity-Evoked pH Changes With APT-CEST MRI at 7 T,** Vitaliy Khlebnikov, Jeroen C.W. Siero, Alex A. Bhogal, Peter R. Luijten, Dennis W.J. Klomp, and Hans Hoogduin 126
Published online 20 November 2017

- An Efficient Sequence for Fetal Brain Imaging at 3T With Enhanced T₁ Contrast and Motion Robustness,** Giulio Ferrazzi, Anthony N. Price, Rui Pedro A.G. Teixeira, Lucilio Cordero-Grande, Jana Hutter, Ana Gomes, Francesco Padormo, Emer Hughes, Torben Schneider, Mary Rutherford, Maria Kuklisova Murgasova, and Joseph V. Hajnal 137
Published online 28 November 2017

CONTENTS

A Biomimetic Tumor Tissue Phantom for Validating Diffusion-Weighted MRI Measurements, Damien J. McHugh, Feng-Lei Zhou, Ian Wimpenny, Gowsihan Poologasundarampillai, Josephine H. Naish, Penny L. Hubbard Cristinacce, and Geoffrey J. M. Parker 147
Published online 20 November 2017

Bayesian Estimation of Multicomponent Relaxation Parameters in Magnetic Resonance Fingerprinting, Debra McGivney, Anagha Deshmane, Yun Jiang, Dan Ma, Chaitra Badve, Andrew Sloan, Vikas Gulani, and Mark Griswold 159
Published online 20 November 2017

Template-Based Field Map Prediction for Rapid Whole Brain B_0 Shimming, Yuhang Shi, S. Johanna Vannesjo, Karla L. Miller, and Stuart Clare 171
Published online 28 November 2017

Free-Breathing Whole-Heart 3D Cine Magnetic Resonance Imaging With Prospective Respiratory Motion Compensation, Mehdi H. Moghari, Ashita Barthur, Maria E. Amaral, Tal Geva, and Andrew J. Powell 181
Published online 8 December 2017

A Rapid T_1 Mapping Method for Assessment of Murine Kidney Viability Using Dynamic Manganese-Enhanced Magnetic Resonance Imaging, Kai Jiang, Hui Tang, Prasanna K. Mishra, Slobodan I. Macura, and Lilach O. Lerman 190
Published online 28 November 2017

Motion-Tolerant Diffusion Mapping Based on Single-Shot Overlapping-Echo Detachment (OLED) Planar Imaging, Lingceng Ma, Congbo Cai, Hongyi Yang, Shuhui Cai, Junchao Qian, Lizhi Xiao, Kai Zhong, and Zhong Chen 200
Published online 28 November 2017

Improved Parallel Image Reconstruction Using Feature Refinement, Jing Cheng, Sen Jia, Leslie Ying, Yuanyuan Liu, Shanshan Wang, Yanjie Zhu, Ye Li, Chao Zou, Xin Liu, and Dong Liang 211
Published online 28 November 2017

Quantitative Comparison of Delayed Ferumoxytol T_1 Enhancement With Immediate Gadoteridol Enhancement in High Grade Gliomas, Andrea Horváth, Csanad G. Varallyay, Daniel Schwartz, Gerda B. Toth, Joao P. Netto, Ramon Barajas, Péter Várallyay, László Szidonya, Jenny Firkins, Emily Youngers, Rongwei Fu, Prakash Ambady, Péter Bogner, and Edward A. Neuwelt 224
Published online 4 December 2017

Cardiac MR Elastography Using Reduced-FOV, Single-Shot, Spin-Echo EPI, Yi Sui, Shivaram P. Arunachalam, Arvin Arani, Joshua D. Trzasko, Phillip M. Young, James F. Glockner, Kevin J. Glaser, David S. Lake, Kiaran P. McGee, Armando Manduca, Phillip J. Rossman, Richard L. Ehman, and Philip A. Araoz 231
Published online 1 December 2017

Doppler Ultrasound Triggering for Cardiac MRI at 7T, F. Kording, C. Ruprecht, B. Schoennagel, K. Fehrs, J. Yamamura, G. Adam, J. Goebel, K. Nassenstein, S. Maderwald, H.H. Quick, and O. Kraff 239
Published online 1 December 2017

Prospective Motion Correction Enables Highest Resolution Time-of-Flight Angiography at 7T, Hendrik Mattern, Alessandro Sciarra, Frank Godenschweger, Daniel Stucht, Falk Lüsebrink, Georg Rose, and Oliver Speck 248
Published online 11 December 2017

MRI Monitoring of Focused Ultrasound Sonications Near Metallic Hardware, Hans Weber, Pejman Ghanouni, Aurea Pascal-Tenorio, Kim Butts Pauly, and Brian A. Hargreaves 259
Published online 7 December 2017

Notes

Demonstration of Velocity Selective Myocardial Arterial Spin Labeling Perfusion Imaging in Humans, Terrence R. Jao and Krishna S. Nayak 272
Published online 6 November 2017

Inner-Volume Echo Volumar Imaging (IVEVI) for Robust Fetal Brain Imaging, Rita G. Nunes, Giulio Ferrazzi, Anthony N. Price, Jana Hutter, Andreia S. Gaspar, Mary A. Rutherford, and Joseph V. Hajnal 279
Published online 8 November 2017

Optimization and Validation of Accelerated Golden-Angle Radial Sparse MRI Reconstruction With Self-Calibrating GRAPPA Operator Gridding, Thomas Benkert, Ye Tian, Chenchan Huang, Edward V.R. DiBella, Hersh Chandarana, and Li Feng 286
Published online 28 November 2017

■ PRECLINICAL AND CLINICAL IMAGING

Full Papers

Diminished Cerebral Oxygen Extraction and Metabolic Rate in Sickle Cell Disease Using T_2 Relaxation Under Spin Tagging MRI, Adam M. Bush, Thomas D. Coates, and John C. Wood 294
Published online 1 December 2017

CONTENTS

- Using MRI Cell Tracking to Monitor Immune Cell Recruitment in Response to a Peptide-Based Cancer Vaccine**, Marie-Laurence Tremblay, Christa Davis, Chris V. Bowen, Olivia Stanley, Cathryn Parsons, Genevieve Weir, Mohan Karkada, Marianne M. Stanford, and Kimberly D. Brewer 304
Published online 29 November 2017

■ BIOPHYSICS AND BASIC BIOMEDICAL RESEARCH

Full Papers

- Relationships Between Tissue Microstructure and the Diffusion Tensor in Simulated Skeletal Muscle**, David B. Berry, Benjamin Regner, Vitaly Galinsky, Samuel R. Ward, and Lawrence R. Frank 317
Published online 31 October 2017

- The Effects of Intravoxel Contrast Agent Diffusion on the Analysis of DCE-MRI Data in Realistic Tissue Domains**, Ryan T. Woodall, Stephanie L. Barnes, David A. Hormuth II, Anna G. Sorace, C. Chad Quarles, and Thomas E. Yankeelov 330
Published online 8 November 2017

- Transverse Signal Decay Under the Weak Field Approximation: Theory and Validation**, Avery J.L. Berman and G. Bruce Pike 341
Published online 1 December 2017

■ COMPUTER PROCESSING AND MODELING

Full Paper

- Artificial Neural Networks for Stiffness Estimation in Magnetic Resonance Elastography**, Matthew C. Murphy, Armando Manduca, Joshua D. Trzasko, Kevin J. Glaser, John Huston III, and Richard L. Ehman 351
Published online 28 November 2017

■ HARDWARE AND INSTRUMENTATION

Full Papers

- An Inductively Coupled Ultra-Thin, Flexible, and Passive RF Resonator for MRI Marking and Guiding Purposes: Clinical Feasibility**, Akbar Alipour, Sayim Gokyar, Oktay Algin, Ergin Atalar, and Hilmi Volkan Demir 361
Published online 16 November 2017

- Adaptive Integrated Parallel Reception, Excitation, and Shimming (iPRES-A) With Microelectromechanical Systems Switches**, Dean Darnell, Yixin Ma, Hongyuan Wang, Fraser Robb, Allen W. Song, and Trong-Kha Truong 371
Published online 16 November 2017

- Constrained Optimization for Position Calibration of an NMR Field Camera**, Paul Chang, Sahar Nassirpour, Martin Eschelbach, Klaus Scheffler, and Anke Henning 380
Published online 20 November 2017

- Approaching Ultimate Intrinsic Specific Absorption Rate in Radiofrequency Shimming Using High-Permittivity Materials at 7 Tesla**, Gillian G. Haemer, Manushka Vaidya, Christopher M. Collins, Daniel K. Sodickson, Graham C. Wiggins, and Riccardo Lattanzi 391
Published online 28 November 2017

- A Z-Gradient Array for Simultaneous Multi-Slice Excitation With a Single-Band RF Pulse**, Koray Ertan, Soheil Taraghinia, Alireza Sadeghi, and Ergin Atalar 400
Published online 4 December 2017

Note

- Synthesized Tissue-Equivalent Dielectric Phantoms Using Salt and Polyvinylpyrrolidone Solutions**, Carlotta Ianniello, Jacco A. de Zwart, Qi Duan, Cem M. Deniz, Leeor Alon, Jae-Seung Lee, Riccardo Lattanzi, and Ryan Brown 413
Published online 20 November 2017